DOCUMENT RESUME

ED 272 586 UD 024 365

AUTHOR Anderson, Patricia W.
TITLE New Age Ethics: Ethical Implications on Critical Future Issues.
INSTITUTION San Diego State Univ., Calif. National Origin Desegregation Assistance (Lau) Center.
PUB DATE 84
NOTE 28p.; In: Educational and Societal Futures: Meeting the Technological Demands of the 1990s. Proceedings of a Conference (Anaheim, California, April 28, 1983); see UD 024 362.
PUB TYPE Viewpoints (120) -- Reports - General (140) -- Speeches/Conference Papers (150)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Conservation (Environment); Cybernetics; *Ethics; *Futures (of Society); *Nuclear Warfare; Scientific Attitudes; *Social Change; *Technological Advancement; World Problems

ABSTRACT

Twentieth century scientific advancement has produced a "New Age" requiring a new ethics. The nature of human action has been profoundly and irrevocably modified. Theoretically, an ethics for the New Age must take into account humankind's new relationships to human interaction and to the natural world. New issues requiring important ethical decisions include medical intervention, genetic engineering and biotechnology, modern armaments, nuclear energy, biocybernetics and computerization. The following propositions relate to these issues: (1) Humankind occupies a critical link within the chain of life, and human's self-interest as a species is inseparable from the well-being of the earth. (2) There is a new transgenerational ethics, dimensioned in time. (3) Temporal parameters have been redefined. There is a new meaning in the link between past, present, and future. (4) With the development of biotechnology, humans are engaged in Participatory Evolution. (5) Humankind is witnessing the change in change itself. (6) Life is information. Death is a loss of information and a disruption of the transgenerational relays in information for both humans and nature. (7) A new imperative exists to recognize the social implications of technology, and to guide the development and utilization of technology with humanitarian values. These seven propositions suggest the parameters of the New Age Ethics, but the overriding ethical issue of today is the nuclear predicament. Educators must work to reconstitute the relationship between generations, both present and unborn, and between humankind and planet Earth. (KH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
Alberto M. Ochoa
National Origin Desegregation Center
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED272586

UD024365

NEW AGE ETHICS

ETHICAL IMPLICATIONS ON CRITICAL FUTURE ISSUES

Patricia W. Anderson

The future: We arrive today, in 1983, as a species still intact, still viable--at the threshold of a new age. Some would say that Einstein's discovery of the formula for the conversion of mass into energy, $E=mc^2$ marked the beginning of the New Era. Others claim different milestones: the discovery of DNA, the chemical code of life, the invention of the transistor (which ushered in the microelectronic revolution), the discovery of gene cloning in microscopic bacterial factories or the birth of the first "test tube" baby. The criteria for demarcating the New Age might differ but few would argue that it has arrived.

Our purpose is to explore the ethical implications of this New Age. Do New Age Ethics differ from the ethics of a former era? If so, how? What specific technologies suggest the more profound ethical dilemmas? Are we coping as a nation with the ethical issues of the future?

At the outset it is important to make one preliminary comment. Ethics and interrelated discussions can easily become mired in politics, hyperbole, subjective philosophical bias and moral pronouncement. These remarks are intended to serve as a catalyst and for study and deliberation.

THEOREM: There exists a New Age Ethics, qualitatively different from the ethics of a former era.

Several major categories come to mind in considering ethical issues: medical intervention, genetic engineering, and biotechnology, modern armaments (including chemical and biological warfare), nuclear energy, biocybernetics and computerization. In support of this theorem, several propositions which directly relate to the major categories cited above and to the ethical issues they evoke will be suggested.

As a preliminary to this set of propositions, it might be helpful to consider a basic definition of ethics.[1] Traditionally, ethics has concerned the immediate ends and direct interaction between persons, and the moral principles and values relating to human conduct. In the New Age or scientific-technological society, the nature of human action has been profoundly and irrevocably modified. Knowledge and technology have augmented human's ability to affect other human beings, other species, ecosystems and the planet. The old, anthropocentric ethics is suddenly inadequate in defining human's ethical constructs. An ethics for the New Age must take into account humankind's new relationship not only with respect to human interaction but with the natural world, the machine, the web of life and the ecosphere itself.

PROPOSITION: Humankind occupies a critical link within the chain of life. Human's self-interest as a species is inseparable from the well-being of the earth.

This connectedness of the human species within the web of life is articulated with elegance and precision by Lewis Thomas in his classic work, The Lives of a Cell (1974). Dr. Thomas draws the analogy between planet Earth and a single cell, examining in turn the interdependent communities and mutual support systems within the life chain. From microbes and multicelled organisms to societies as organisms, Thomas examines the earth as a living cell whose fragile membrane--the atmosphere--shields against the potentially lethal ultraviolet radiation from the sun, nurtures great varieties of life and diffuses the impact of the millions of meteorites which fall against the earth each day. In meticulous detail, Thomas profiles the elaborate collaboration in nature and warns that humans are "safe, well ventilated, and incubated, provided we can avoid [certain] technologies" (p. 173).

One need not look far to see evidence of the connectedness among life species and the extreme vulnerability of the life chain to the technology of the Scientific Age. Accounts of industrial pollutants (including invisible toxic gases), poisonous chemical and nuclear waste, acid rain, and potential depletion of the ozonosphere by supersonic transports and nuclear weapons suggest the ecological peril which we face both as a species and as stewards of the planet. By current estimates, the earth loses species at the rate of about three per day.

Several examples document the magnitude of the threat to ecosystems. Cubatao, Brazil's richest city and South America's

largest industrial park, is said to be the Valley of Death. The last complete study, made five years ago, revealed that on any given day the 22 giant petrochemical and steel plants in this city of 85,000 pump into the air 875 tons of toxic gases, 473 tons of carbon monoxide, and 182 tons of sulfuric oxide. Four rivers that run through the city are dead, and trees and soil are lifeless. There is a high incidence of birth defects among the human population; a recent study showed that 65 of every 1000 children born in Cubatao die of anencephalia, a condition in which children are born with only vestiges of the brain--not including the parts that allow thought and consciousness (Freed, 1983b).

Related news accounts from Brazil describe disruption in the ecosystem of the Pantanal (Portuguese for swamp), a wilderness paradise of wildlife and flora which extends over 80,000 square miles. The poaching of alligators to satisfy fashion's craze for reptile skin handbags and shoes has led to mass slaughter of the alligator. Within the past four years, 20% of the 20 million alligators of the swamp have been killed, which in turn has disrupted the natural balance between the jacare (alligator) and the piranha. Without the control of the piranha population by the alligator, the piranha have driven out other fish and have become a serious threat to ranches (it takes a swarm of piranha 20 minutes to strip a 650 pound steer) (Freed, 1983a).

Other examples of ecologic peril abound. The elimination of tropical rain forests in West Africa, southern Asia, and the

Caribbean has been documented (see for example, National Geographic, January, 1983), and rain- and snow-borne sulfuric and nitric acids (so-called acid rain) from fossil fuel combustion have deadened thousands of lakes in Scandinavia and hundreds in the U. S. and Canada (LaBastille, 1981). Sterile and fishless, the lakes show the heavy toll paid for industrialization.

Acid-rain, toxic-chemical pollution, and carbon dioxide build-up are ranked by some scientists as among the worst "environmental time bombs" (LaBastille, 1981), threatening ecosystems with disruption and death and linking generations over time. Several incidents in the United States in the past few years bear testimony to the threat: Love Canal, where toxic chemicals such as benzene seeped into the basements of houses along an abandoned dump site; Times Beach, Missouri, where the spraying of dirt roads with dioxin-laced oil in the 1970s resulted in bizarre deaths of animals and led to dangerously high levels of dioxin in many of the town's drainage ditches today ("The Dioxin Scare," 1983); and Three Mile Island, the site of a nuclear accident four years ago at Harrisburg, Pennsylvania, where the overheated uranium core came within 30 to 60 minutes of a meltdown (Pollard, 1983). Three Mile Island raises the specter, too, of the disposal of nuclear waste--radioactive garbage--with its residual radioactive potency threatening human beings hundreds of years from now (Carlson, 1983).

At issue is the very habitability of the earth and the prospective habitability of the earth, which introduces a second proposition.

PROPOSITION: There is a new transgenerational ethics, dimensioned in time.

Jonathan Schell develops the rationale for this transgenerational ethics in his landmark work, The Fate of the Earth (1982). He cites (p. 118) Hannah Arendt's distinction between the private realm and the common world, quoting Arendt's (1958) description of the latter:

> The common world is what we enter when we are born and what we leave when we die. It transcends our life-span into past and future alike; it was there before we came and will outlast our brief sojourn in it. It is what we have in common not only with those who live with us, but also with those who were here before and with those who will come after us.

The critical links which bind today's generation with the dead and the unborn are starkly illuminated by the sense of our responsibility for the condition and habitability of the earth. The present generation was once the future generation, and was received by the then-stewards of the earth. In turn, this generation is charged with the well being of the earth and must allow for the unborn, with each one assuming responsibility for preserving life on earth for future generations.

Related to a transgenerational ethics is a third proposition.

PROPOSITION: Temporal parameters have been redefined. There is a new meaning in the link between the past, the present and the future.

The redefinition of time is substantiated by several phenomena. For the first time in the history of humankind, given nuclear armaments and the peril of a holocaust, one cannot assume the future; one must achieve the future (Schell, 1982). Second, medical technologies have blurred the boundaries between life and death, present and future, by artificial life-support systems for the individual, raising the ethical question of when, and on whose say, it is right to withdraw medical treatment. A recent dramatic example of new boundaries between life and death involved the fetus which grew in a dead woman's womb for 63 days while the mother's body was maintained on an artificial support system (Nelson, 1983).

Another indicator of a redefinition of temporal parameters is the acceleration in technological development, eclipsing former rates. Knowledge is said to be doubling every five years, and science fiction of 1970 ("test tube" babies, for example) has, in many instances, become a commonplace occurrence today. Time has taken on a new significance, too, when one considers the swiftness with which humans can now "self-destruct" as a species in a nuclear holocaust, after a few million years residency on earth.

A critical dimension in the redefinition of time has come about by two identifiable phenomena: participatory evolution and the change in change itself (Ferguson, 1980), from which we derive the following two propositions.

PROPOSITION: Humans are engaged in Participatory Evolution.

PROPOSITION: Humankind is witnessing the change in change itself.

Participatory evolution has developed as a result of advances on two fronts: genetic engineering (biotechnology) and biocybernetics. With the discovery of DNA, the chemical code and blueprint for life, the site of evolutionary forces moved from the genes to the cerebral cortex (Schell, 1982); the laws of natural selection under Darwinism were superseded by man-made selection. As Marilyn Ferguson commented in her 1980 publication The Aquarian Conspiracy: "For the first time in history, humankind has come upon the control panel of change--an understanding of how transformation occurs. We are living in the change of change" (p. 29).

The change in change itself is indexed in some measure by placing the genetic revolution in evolutionary context. While life appeared on the earth 4 billion years ago, and man appeared 1 million years ago, genetic engineering was nonexistent 20 years ago. With the discovery of the structure and functions of DNA (deoxyribonucleic acid) and DNA cloning techniques, scientists achieved the means for diagnosis and clinical treatment of some inherited diseases, the tailoring and transplantation of genes from one species to another, and the promise of gene therapy (the process of correcting genetic diseases by replacing defective genes with normal ones or by chemically mending defective genes) ("Entering the Golden Age," 1982). Scientists, according to one science journalist, foresaw the reality of "genetic surgery" in the early 1970s:

> (G)eneticists will be able to delete undesirable genes, insert others, and mechanically or chemically transform still others, foreordaining, at the molecular level, the physical, mental, and even racial

> characteristics of the incipient individual. (Rorvik, 1970, p. 19).

Today, fetal and newborn screening for certain genetic disorders is already common. Scientists are refining their understanding of the manner in which cells develop, differentiate and die. Researchers are utilizing recombinant-DNA technology in the search for those arrangements of the genes which give optimal selective advantage, as in the case of the "2x" mouse.[2] For the general public, such experimentation often recalls eugenic efforts of the Nazis to "purify" a race, or fears of human-animal chimeras and humanoid hybrids.

David Rorvik in his 1978 bestseller, In His Image. The Cloning of a Man, explores the scientific, social, moral, and religious issues of cloning. He raises many ethical issues of concern: the bioethicist's concern for when life begins and the sacrificing of "bench embryos" (zygotes or fertilized cells) during experimental procedures; the possibility of ectogenesis (complete test-tube pregnancies in which babies would essentially be decanted from bottles); the freezing of embryos and their subsequent implantation at a later time in surrogate mothers; cloning as a contrived perpetuation into another generation of an already existing genotype (for example, to replicate individuals of great talent or other attributes, to bypass the risk of genetic disease, to provide large sets of genetically identical humans for studies of nature versus nurture, to produce sets of identical persons to perform certain occupations, or to produce embryonic replicas of each person, to be frozen away until needed as a source of organ

transplants); legal issues with respect to clinical offspring; and prefabricated, "marketable" babies. Rorvik notes that in 3 billion years more than 100 million species have existed on the earth, all but 2 million of these species are now extinct. Previously, it took 5 to 20 million years for a single mutation to become completely incorporated into species; modern technology permits new radical mutational changes in the genetic schemata of any given species practically overnight (1978, p. 154).

Developments in biocybernetics have led to the ability to link human beings directly with the machine to extend and amplify human strengths and to provide for versatility and reversibility in evolutionary adaptation (Rorvik, 1970, p. 21). David Rorvik in his provocative publication entitled As Man Becomes Machine (1970) argues against establishing a gene/machine dichotomy in conceptualizing futuristic evolutionary patterns.

> The true cyborg is a combination of the two, and in some cases genetic engineering might be necessary before man can be satisfactorily wed to machine. It might be used, for example to encourage the body to accept readily the implantation of foreign materials, of electronic circuitry, artificial organs and the like . . . [or] to alter body proportions so that the body can better accommodate mechanical additions. (p. 20).

The medical cyborg, or bionic is already a reality for thousands of individuals with steel bones, pacemakers, cardiac valve replacements, artificial arms and legs, plastic corneas, mechanical hip joints and implants. This medical cyborg, which Rorvik calls an "evolutionary chimera," heightens the

plausibility of "total prosthesis" in man. This concept, the exchange of all bodily parts except the brain for more reliable ones, led Rorvik to recall the words of Thomas Edison: "The body is just something to carry the brain around in" (Edison, cited in Rorvik, 1970, p. 16). Recent success with the artificial heart and with the use of computerized artificial arms and legs for quadriplegics and paraplegics represent quantum leaps in biocybernetics, suggesting the future promise in this field.

Cyborg development suggests man-machine systems of other sorts: Cybernetic Anthropomorphous Machine Systems (CAMS) that will "project and amplify man's senses and manipulative capabilities to remote and hostile environments without endangering the man himself" (Rorvik, 1970, p. 161), a man-machine partnership which might prove to be critical in space and oceanic exploration;[3] Biofeedback Training (BFT), in which electrocardiograms, electroencephalographs, and other monitoring devices link physiological functions with an individual's consciousness and control; and electronic stimulation of the brain (ESB), in which direct electronic stimulation of certain cerebral sites (via electrodes which are surgically implanted in the brain) may evoke a full range of emotional and physical responses.

These technologies and prospective technologies raise a host of ethical dilemmas: personhood, civil rights, the quality of life, electroconvulsive therapy, the rights of mental patients, electronic surveillance, equity in access and benefits of medical care, genetic intervention and individual

risks, proxy consent, euthanasia, and the allocation of resources at the national and global level. Cases involving such issues are coming before the courts with increasing frequency, and it can be reasonably assumed that their complexity will only be intensified in the decades ahead.

From the concept that the New Age Ethics is characterized as transgenerational, transpecies, and evolves in part from the human's relationship to high technology and to the Ecosphere, a sixth proposition can be derived.

PROPOSITION: Life is information. Death is a loss of information and a disruption in the transgenerational relays in information for both humans and nature (Schell, 1982).

To understand this proposition, it is helpful to focus upon four levels of life: the organism, the species, the ecosystem and the ecosphere. Schell (1982) argues that human mastery over nature has produced a categorical increase in the power of death on earth and the threat of a return to randomness within each level:

> An organism's ability to renew itself during its lifetime and to reproduce itself depends on the integrity of what biologists call "information" stored in its genes. What endures - what lives - in an organism is . . . a configuration of cells which is dictated by the genetic information. What survives in a species, correspondingly, is a larger configuration, which takes in all the individuals in the species. An ecosystem is a still larger configuration, in which a whole constellation of species forms a balanced, self-reproducing, slowly changing whole. The ecosphere of the earth - Dr. Lewis Thomas's "cell" - is, finally, the largest of the living configurations, and is a carefully regulated and balanced, self-perpetuating system in its own right. At each of these levels life is coherence, and the loss of coherence - the sudden slide toward disorder - is death (pp. 111-112).

While death for the individual is built into its plan, notes Schell, species and ecosystems are indefinitely self-renewing as long as environmental circumstances permit. Human intervention in the environment, when it results in a pace of death which is too great, threatens species, ecosystems and the ecosphere in its entirety.

Schell calls attacks on either the biological or cultural heritage that human beings transmit "crimes against the future." We are confronted with the moral obligation to ensure transgenerational relays in information for both humans and nature.

A summary of the six propositions discussed thus far is given below:

> Proposition: Humankind occupies a critical link within the chain of life. Human's self-interest as a species is inseparable from the well-being of the earth.
>
> Proposition: There is a new transgenerational ethics, dimensioned in time.
>
> Proposition: Temporal parameters have been redefined. There is new meaning in the link between the past, the present, and the future.
>
> Proposition: Humans are engaged in Participatory Evolution.
>
> Proposition: Humankind is witnessing the change in change itself.
>
> Proposition: Life is information. Death is a loss of information and a disruption in the transgenerational relays in information for both humans and nature.

The specific ethical issues which attend medical intervention, biotechnology, chemical and neutron armaments, nuclear energy, biocybernetics, and computerization of the New Age comprise a commanding list and fascinating case studies. Some

of these issues are listed in Table I. Each is related in some manner to the set of propositions listed above. Each merits scrutiny and thoughtful consideration. Each compels examination of the possible bifurcation between science and technology on the one hand and humanitarian values and concerns on the other, and recognition of the philosophical, ethical and social implications of technology. This leads to a seventh proposition:

PROPOSITION: The classic two cultures between the scientist and technician on the one hand and the layperson on the other (C. P. Snow) are no longer viable. A new imperative exists to recognize the social implications of technology, and to guide the development and utilization of technology with humanitarian values.

These seven propositions suggest the parameters of the New Age Ethics. One cannot hope to address the essence of these ethics, however, unless one also confronts the overriding ethical issue of today: the nuclear predicament. This issue takes precedence over and eclipses all other moral questions. It is this issue that will now be examined.

To Be Survived: The Ethical Imperative of the Future

When humankind learned to convert mass to energy through atomic fission, the means of unleashing cosmic energy within the earth's frail ecosphere was discovered. The amount of mass expended in Hiroshima on the morning of August 6, 1945 was 1 gram, or 1/30th of an ounce, yet the city was reduced to rubble instantaneously with the detonation of the bomb. Today,

TABLE I. Ethics of the New Age, by Level of Life

Individual/Organism		
Personhood	The quality of life issue	Paternity of ideas
Civil rights	Genetic engineering	Equity in access and benefits of medical care
Informed consent	Cloning	Physical security and freedom from fear with respect to bodily and psychic harm
The right to health care	Surrogate motherhood	Randomization in medical experimentation and problem of informed consent
Death with dignity	Fetal research	Electronic surveillance
Proxy consent (for the child, etc.)	Electroconvulsive therapy	Electronic stimulation of brain (ESB)
Privacy/confidentiality	Drug therapy	Ectogenesis
As subjects in research	Rights of mental patients	Genetic intervention and individual risks
Treatment of terminally ill	Licensing for reproduction	Living wills
Bench embryos	Abortion	Tests of competency (autonomy of person)
Zygotes (fertilized eggs) and their use in experimentation	Fetal development in dead organism being artificially maintained	
Contract pregnancies and paternity issues	Biocybernetics	
Withholding of medical treatment: when & how	Genetic monitoring, the testing for jobs	
Euthanasia: active & passive	In vitro fertilization and anonymity of donor/recipient	
	Capital punishment	
Species		
Eugenics (positive)	Natural selection vs. human manipulation	Chemical armaments
Eugenics (negative)	Toxic pesticides, acid rain, industrial pollution	Biological armaments
Life cycle: maintenance	Quality of life	Nuclear armaments
Civil rights as a species	Self-determination	Maintenance of culture
Ecosystems		
Maintenance of diverse ecosystems	Maintenance of balance in chain of life	Maintenance of diversity of species
Mutual support systems	Disposal of nuclear wastes	
Ecosphere		
Preservation of habitability of Earth		

roughly 50,000 nuclear warheads are in place around the globe. These warheads have the explosive yield of 20 billion tons of TNT, an amount which is about 1,600,000 times the yield of the bomb which exploded over Hiroshima (Schell, 1982). A nuclear holocaust, "unthinkable but never doable," is a possible--and probable--reality of this Atomic Age, placing each member of our species and life on earth in jeopardy of extinction. In the face of this peril, one can only recoil in fear, helplessness, despair, and denial, succumbing to a political, emotional and intellectual paralysis without precedent in human history.

An epistemology of the effects of nuclear weapons can be found in several sources,[4] and familiarization with these effects can only lead one to question the justification for maintaining and expanding current nuclear arsenals on earth. Rather than documenting the technical capabilities of nuclear weapons here, however, what should be explored is the question of how we have become so deeply embedded in the nuclear predicament and a few suggestions for freeing ourselves from the entrapment.

As noted by Schell (1982), one of the basic characteristics of the nuclear predicament is the monstrous disproportion between the "basic power of the universe" and the merely terrestrial creatures by which and against which it is aimed. The dimensions of this predicament are revealed by several tenets, enumerated by Schell:

1) Present levels of global armaments are great enough to possibly extinguish the human species

> if a holocaust should occur, 2) in extinction, every human purpose would be lost, 3) there are no "second chances" once human extinction has occurred, 4) the possibility of a nuclear holocaust must be dealt with morally and politically as though it were a certainty, and 5) either by accident or design, a holocaust can occur at any second. (Schell, 1982, pp. 218-219).

These tenets lead to two further propositions.

PROPOSITION: Humans cannot undiscover the knowledge of nuclear weaponry. Science has provided irrevocable knowledge but scientific progress cannot deliver humankind from its own findings and from "our own destructive and self-destructive nature" (Schell, 1982).

PROPOSITION: Human extinction threatens the cancellation of all future generations of human beings. Human's first death, in mortality, is now compounded by a second death, the death of humankind (Schell, 1982).

Philosophers and social critics have often commented upon the permanence of the scientific edifice. While social revolutions come and go, scientific revolutions are said to belong to all places and all times. By corollary, the annihilation of the world may occur only once:

> We are indeed fated by our acquisition of the knowledge of physics to live for the rest of time with the knowledge of how to destroy ourselves. But we are not for that reason fated to destroy ourselves. We can choose to live. (Schell, 1982, p. 219).

While death of the individual cuts off life, part of its meaning is in the fact that it occurs in a biological and social world that survives. Extinction, on the other hand, cuts off birth and offers no redemption.

Robert Jay Lifton, a Yale psychiatrist, has analyzed the effect of "nuclearism" on the psyche. Writing with Richard Falk in their Preface to the 1982 publication, Indefensible Weapons, they define nuclearism:

> By nuclearism we mean psychological, political, and military dependence on nuclear weapons, the embrace of the weapons as a solution to a wide variety of human dilemmas, most ironically that of 'security.'

Lifton names three trends in the nuclear weapons predicament which have led to the dominance of nuclearism in our lives: (1) the changed relationship between people and nuclear weapons, with no one person or group exercising the capability for control, (2) refinements in nuclear technology which have encouraged the perception of a nuclear warhead as merely another weapon rather than a step toward oblivion, and (3) the various factors contributing to the increased possibility of nuclear war (see Figure 1). He describes the nuclear entrapment in which a sense of bomb-induced futurelessness leads to the stockpiling of more and more weapons in an effort to regain security (Figure 2). The psychic numbing which sets in individually and collectively (Figure 3) evolves through fear and a sense of threat, perceived helplessness, resignation and cynicism, and detachment, to finally an attitude of <u>waiting for the bomb</u>.

This psychic numbing is in part a function of nuclear illusions. Lifton notes the illusions that nuclear weapons can be limited and controlled, that foreknowledge and psychological preparedness will help people cope in the event of a nuclear attack, that preparations such as evacuation plans and places for protection (shelters) in the event of an attack are viable, that recovery is possible and, finally, that nuclear warfare can somehow be a rational response to provocation (Lifton, in Lifton & Falk, 1982, pp. 14-21).

Figure 1. Trends in the nuclear weapons predicament (Reference: Lifton, in Lifton and Falk, Indefensible Weapons, 1982)

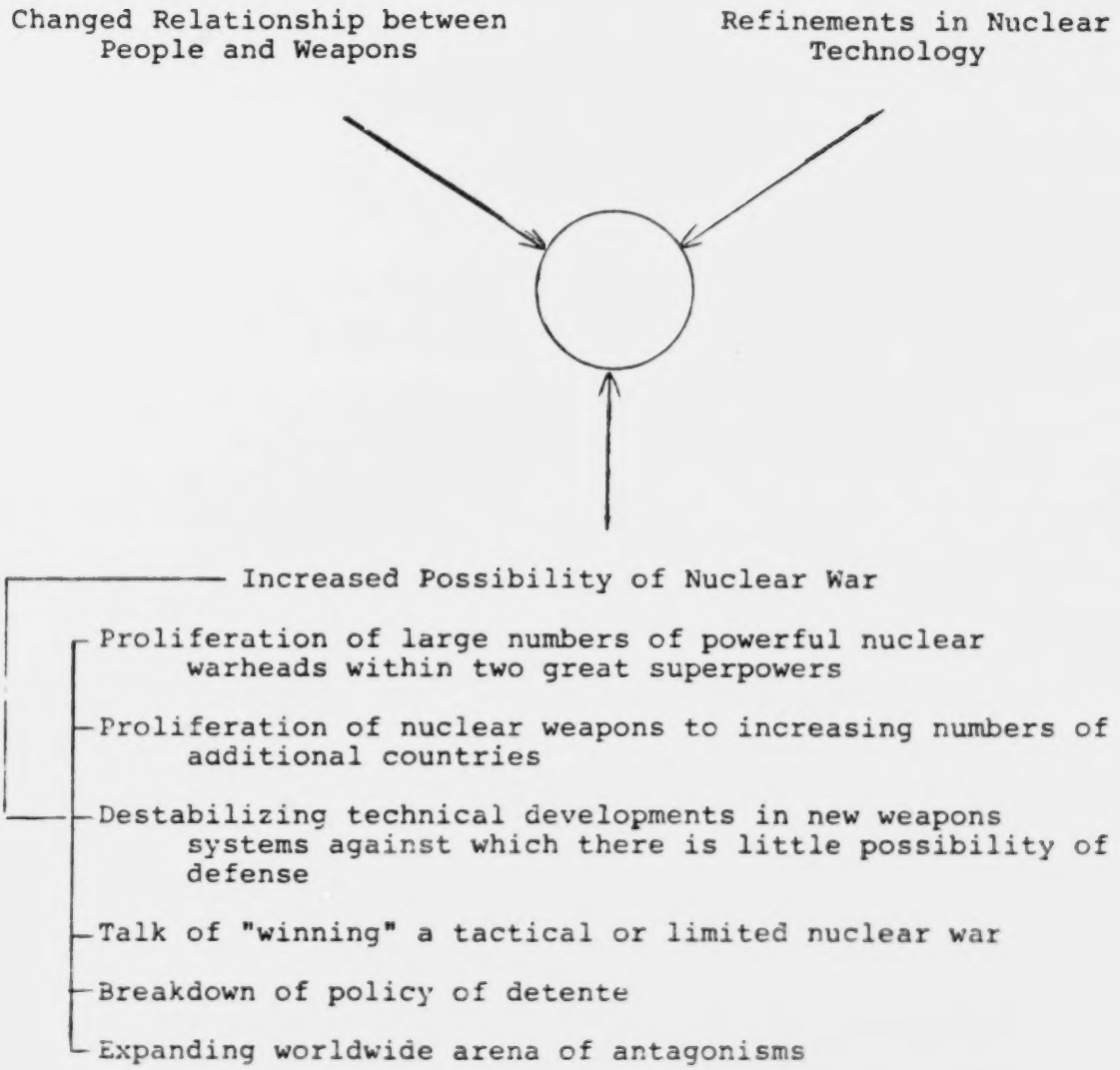

Changed Relationship between People and Weapons
Refinements in Nuclear Technology
Increased Possibility of Nuclear War
Proliferation of large numbers of powerful nuclear warheads within two great superpowers
Proliferation of nuclear weapons to increasing numbers of additional countries
Destabilizing technical developments in new weapons systems against which there is little possibility of defense
Talk of "winning" a tactical or limited nuclear war
Breakdown of policy of detente
Expanding worldwide arena of antagonisms

Figure 2. Nuclear Entrapment (Reference: Lifton, in Lifton & Falk, Indefensible Weapons, 1982)

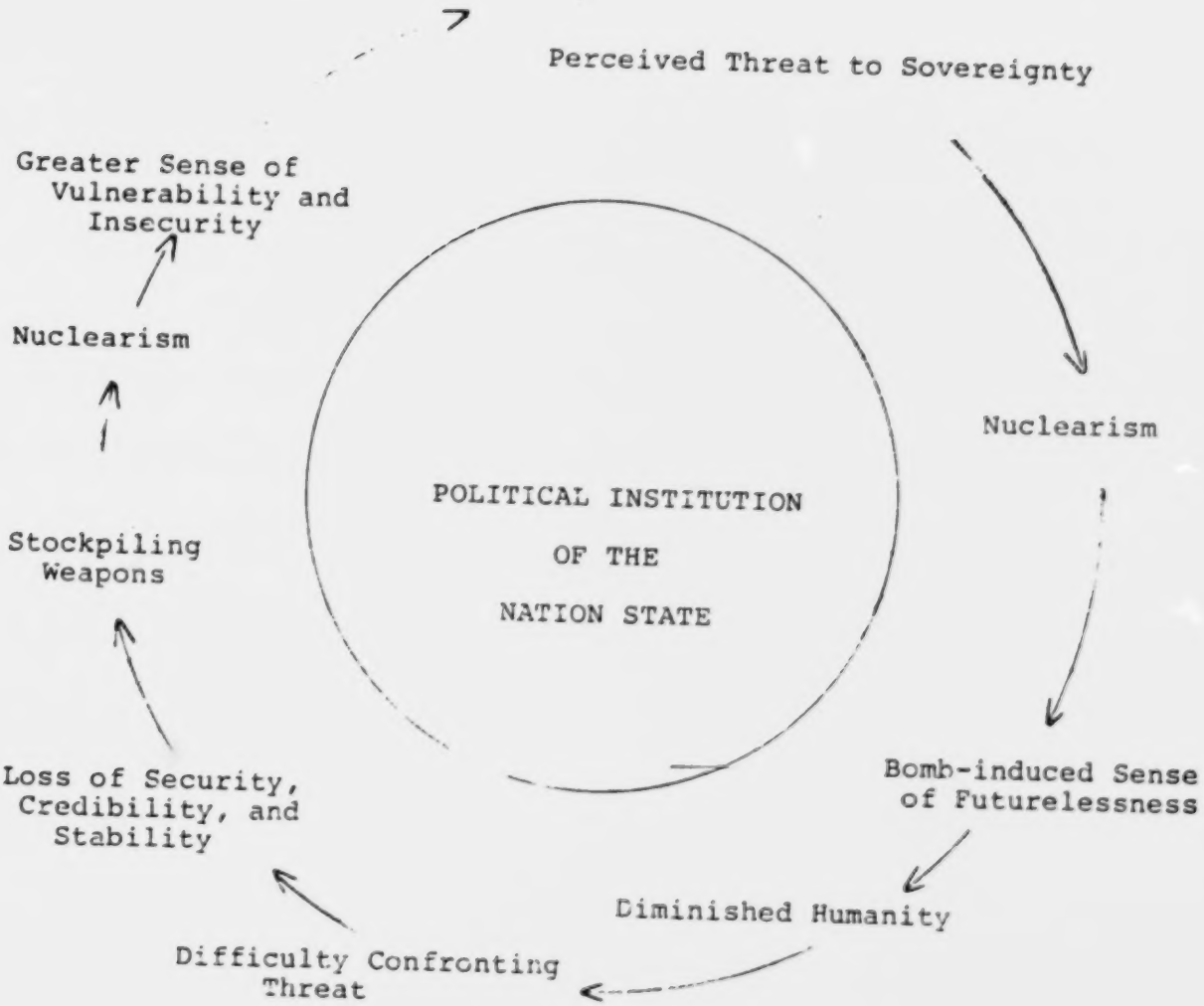
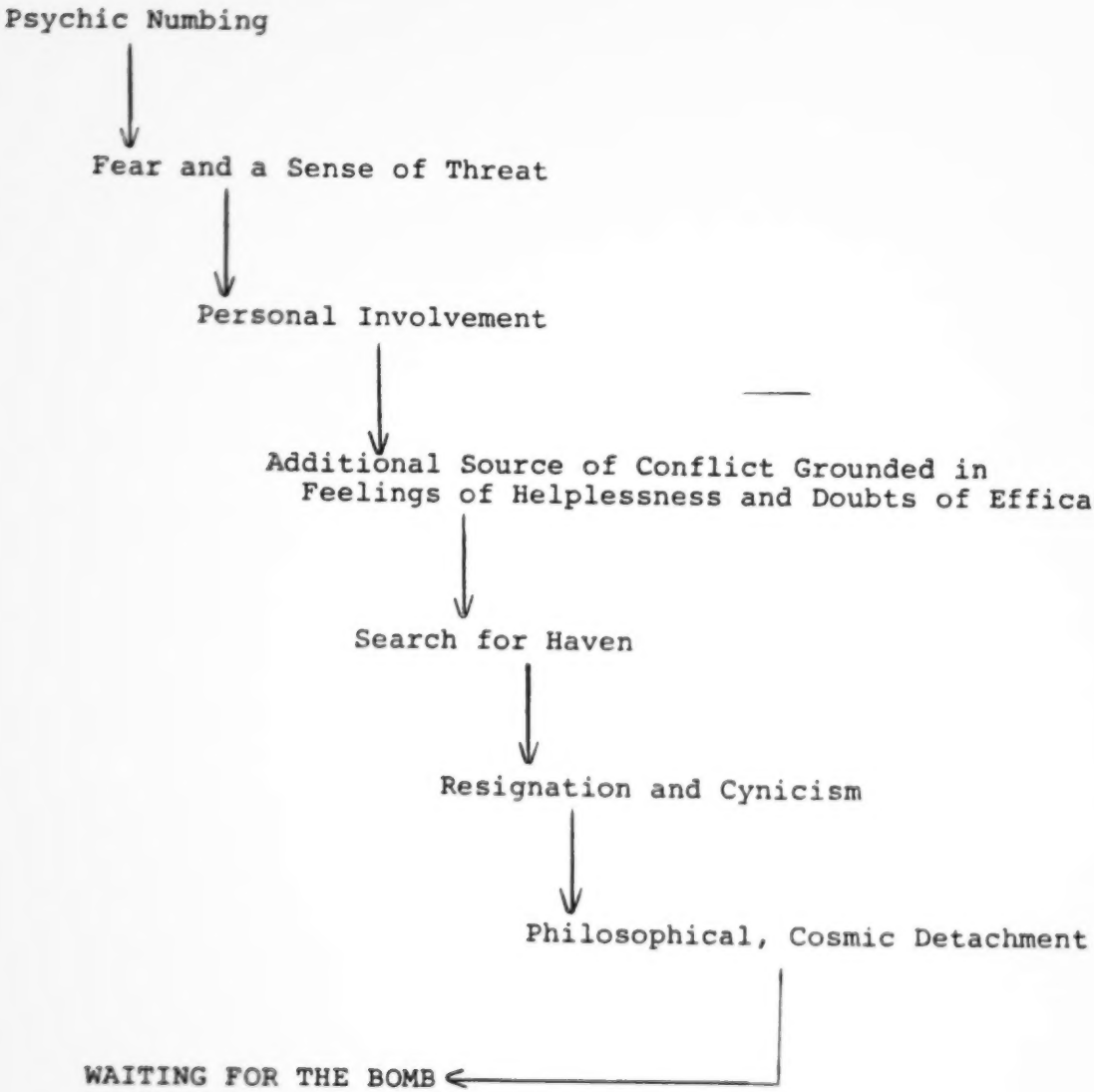


Figure 3. Psychic Numbing (Reference: Robert Jay Lifton, in Lifton & Falk, Indefensible Weapons, 1982).


Psychic Numbing
Fear and a Sense of Threat
Personal Involvement
Additional Source of Conflict Grounded in Feelings of Helplessness and Doubts of Efficacy
Search for Haven
Resignation and Cynicism
Philosophical, Cosmic Detachment
WAITING FOR THE BOMB

Lifton sifts through these multiple illusions and counters them with three major Nuclear Age truths which were singularly conveyed by the bombings of Hiroshima and Nagasaki: the totality of destruction, the unending lethal influence of nuclear detonations and the fact that humans are the victims of an ultimate weapon, a force that threatens to exterminate our species. By examining the four stages in the psychological and social consequences of the bomb for survivors of Hiroshima (immersion in the sea of dead and near dead, invisible contamination, "A-bomb disease" and lifelong identification with the dead), Lifton underscores the sense of nuclear actuality - the sense that a nuclear holocaust in all its horror can actually occur.

The works of Lifton and Falk and by Schell, among others, point to the spurious normalcy or double life in which everyone is now caught. On the one hand, humankind stands at the threshold of self-extinction as a species and yet we are operating with a prenuclear mentality. Deadened, numbed to the nuclear peril, we conduct "life as usual." This concept leads to the eleventh among the propositions:

PROPOSITION: The psychological pressures of the Atomic Age have induced a collective numbing in society. Humankind stands at the threshold of self-extinction as a species, with a prenuclear mentality.

As Jonathan Schell so cogently expresses: "The question to be asked then is no longer what the features and characteristics of extinction are but what it says about us and what it does to us that we are preparing our own extermination" (Schell, 1982, p. 147).

Setting Back the Clock

Since 1947 the Bulletin of the Atomic Scientist has featured a "doomsday clock," with the hands of the clock placed farther away or closer to midnight in correlation with the editors' judgment of the world's proximity to a nuclear holocaust. Schell proposes a hypothetical companion clock whose hands, instead of metaphorically representing a judgment about the probability of a holocaust, represent the amount of time that people can be sure they have left before being destroyed in a holocaust. Schell argues that at the present time the hands would stand at, or a fraction of a second before, midnight (pp. 108-109).

In considering strategies for setting back the clock, the basic fact is that there will never be a time again when self-extinction is beyond our species. One cannot undiscover Einstein's formula $E=mc^2$. What can be done is to synchronize ideas and actions as well as political institutions to an Einsteinian world. One can confront the peril of extinction and the peril of the expiration of the planet. One can ask questions about current political arrangements, can question the hidden effect nuclearism is having in our lives and the lives of our children, can ask whether in the Nuclear Age, traditional goals of victory, national defense, and military superiority are obsolete (Schell, 1982), given that in a nuclear war a decision by arms is impossible.[5]

Educators are in a position to provide leadership in the New Age. Educators can promote a formed awareness (Lifton,

1982) as a first step toward reconstituting the relationship among generations, both present and unborn, across time and place, and the relationship between Humankind and the planet Earth. Humans can opt for survival as a species in symbiosis with the earth, in a new partnership between generations, and with new global linkages among peoples.

FOOTNOTES

1. The Random House Dictionary (Unabridged Version, 1967) defines ethics as 1) a system of moral principles; 2) the rules of conduct recognized in respect to a particular class of human actions or a particular group, culture, etc.; 3) the moral principles, as of an individual; and 4) that branch of philosophy dealing with values relating to human conduct, with respect to the rightness and wrongness of certain actions and to the goodness and badness of the motives and ends of such actions.

2. Bigger mousetraps and thorny ethical issues. The New York Times, December 19, 1982. The gene for growth hormone from a rat was transplanted into the fertilized egg cell of a mouse, resulting in six mice endowed with the foreign gene growing to an unusual size. The experiment aroused considerable interest with respect to the future potential of the transplantation technique in human beings.

3. CAM projects are based upon telefactoring, doing something at a distance. Rorvik cites the example of space repairs and exploration, in which telefactors would replace humans physically but not mentally in potentially hazardous situations.

4. See especially: Lifton and Falk, 1982. Schell, 1982. The medical consequences of nuclear war, 1983.

5. This point is made by Jonathan Schell, who argues that extinction has replaced war as the final arbiter of disputes among peoples.

BIBLIOGRAPHY

Bigger mousetraps and thorny ethical issues. The New York Times. December 19, 1982.

Carlson, E. States scramble to find places for disposal of nuclear waste. The Wall Street Journal. March 1, 1983.

The dioxin scare. The Wall Street Journal. February 25, 1983.

Entering the golden age of genetics. The Stanford Observer. April, 1982.

Ferguson, M. The Aquarian Conspiracy: Personal and Social Transformation in the 1980s. Los Angeles: J. P. Harcher, Inc., 1980.

Freed, K. Alligators imperiled by world of chic. The Los Angeles Times. April 8, 1983(a).

Freed, K. Cubatao - A paradise lost to pollution. The Los Angeles Times. March 14, 1983(b).

LaBastille, A. Acid rain: How great a menace? National Geographic. 1981, 160, 652-681.

Lifton, R., and Falk, R. Indefensible Weapons: The Political and Psychological Case against Nuclearism. New York: Basic Books, 1982.

The medical consequences of nuclear war. The Western Journal of Medicine. 1983, 138, 205-226.

National Geographic, 1983, 163, 2-65.

Nelson, H. Fetus lives in dead mother. The Los Angeles Times, March 31, 1983.

Pollard, R. Three Mile Island's forgotten lessons. The Los Angeles Times, March 23, 1983.

Rorvik, D. As Man Becomes Machine. New York: Pocket Books, 1970.

Rorvik, D. In His Image: The Cloning of a Man. New York: Pocket Books, 1978.

Schell, J. The Fate of the Earth. New York: Avon Books, 1982.

Snow, C. P. The Two Cultures and the Scientific Revolution. New York: Cambridge University Press, 1962.

Stein, J. (Ed.). The Random House Dictionary of the English Language (Unabridged version). New York: Random House, 1967.

Thomas, L. The Lives of a Cell: Notes of a Biology Watcher. New York: Bantam Books, 1974.